

CLAIMS

1. A stent made in the form of a netted hollow volumetric body, formed by interweaving of at least two groups of windings, placed along helical spirals with opposite entry directions, made of a single length of a thread, the material of which possesses elasticity and shape memory effect, wherein cells, opposite in relation to the longitudinal plane of the stent, are displaced with respect to each other, providing for a mismatch of projections of their apexes to the above plane, and the stent thread has a different elasticity in its separate sections, preserving the same thickness of the thread along all length of the stent.
2. The stent made in the form of a netted hollow volumetric body, formed by interweaving of at least two groups of windings, placed along helical spirals with opposite entry directions, made of a single length of a thread, the material of which possesses elasticity and shape memory effect, wherein the cells, opposite in relation to the longitudinal plane of the stent, are displaced with respect to each other, providing for a mismatch of projections of their apexes to the above plane, the stent being made with its separate sections having a different axial curvature preserving minimum deviations of cells geometrical dimensions along curved and rectilinear sections of the stent, not exceeding 20% at a maximum permissible curvature of the stent, along the whole length of the stent.
3. The stent made in the form of a netted hollow volumetric body, formed by interweaving of at least two groups of windings, placed along helical spirals with opposite entry directions, made of a single length of a thread, the material of which possesses elasticity and shape memory effect, wherein cells, opposite in relation to the longitudinal plane of the stent, are displaced with respect to each other, providing for a mismatch of the projection of their apexes to the above plane, and the stent thread has a different elasticity at its separate sections, while preserving the same thickness along the whole length of the stent; the stent being made with its separate sections having a different curvature preserving minimum deviations of cells geometrical dimensions along curved and rectilinear sections of the stent, not exceeding 20% at a maximum permissible curvature of the stent, along the whole length of the stent.
4. The stent of claim 1, or claim 2, or claim 3, wherein it is manufactured from nitinol TiNi, containing in mass %: 55.5 - 56 Ni, the rest Ti.
5. A method of manufacturing a stent, including the formation of a netted hollow volumetric body from a metallic thread by interweaving its windings, woven on a mandrel made as a body of revolution with a rectilinear longitudinal axis, pre-deformation of the stent on the mandrel for giving to it a specified form and dimensions corresponding to its operational status by means of heat treatment and subsequent removal of the mandrel, wherein the body of the stent is formed from a single length of a nitinol thread, and the pre-deformation of the stent is performed by

quenching it from the temperature of 630-660° C into water, attributing a maximum elasticity for this stent; after removal of the mandrel the elasticity of separate sections of the stent is reduced by their secondary heat treatment at the temperature of 330 - 550° C during from 1 to 30 minutes, with the temperature and the time of heat treatment in the above ranges being selected upon the condition of their proportionality to the content of Ni in the alloy and inverse proportionality to the value of elasticity specified to different sections of the stent.

6. The method of manufacturing a stent, including the formation of a netted hollow volumetric body from a metallic thread by interweaving its windings, woven on a mandrel made as a body of revolution with a rectilinear longitudinal axis, pre-deformation of the stent on the mandrel for giving to it specified form and dimensions corresponding to its operational status by means of heat treatment and subsequent removal of the mandrel, wherein the body of the stent is formed from a single length of a nitinol thread, and the pre-deformation of the stent is performed twice, first by an initial heat treatment of the stent on the mandrel with a rectilinear longitudinal axis at the temperature of 330-390° C during 5-20 minutes, and after the end of heat treatment and removal of the above mandrel the stent is put onto a mandrel with a curvilinear longitudinal axis, the form of which corresponds to the form of prostheticated vessel, after which a repeated pre-deformation of the stent is performed by quenching it from the temperature of 630-660° C into water, which attributes a maximum elasticity to this stent; and the mandrel is removed, with the temperature and time of heat treatment in the above ranges selected upon the condition of their proportionality to the content of Ni in an alloy and inverse proportionality to the value of maximum elasticity, attributed to this stent.

7. The method of manufacturing a stent, including the formation of a netted hollow volumetric body from a metallic thread by interweaving its windings, woven on a mandrel made as a body of revolution with a rectilinear longitudinal axis, pre-deformation of the stent on the mandrel for giving to it specified form and dimensions corresponding to its operational status by means of heat treatment and subsequent removal of the mandrel, wherein the body of the stent is formed from a single length of a nitinol thread, and the pre-deformation of the stent is performed twice, first by an initial heat treatment of the stent on the mandrel with a rectilinear longitudinal axis made at the temperature of 330-390° C during 5-20 minutes, and after the end of heat treatment and removal of the above mandrel the stent is put onto a mandrel with a curvilinear longitudinal axis, the form of which corresponds to the form of prostheticated vessel, after which a repeated pre-deformation of the stent is performed by way of its secondary heat treatment at the temperature of 380 - 450° C during from 1 to 30 minutes and removing the mandrel, while the temperature and time of heat treatment in the above ranges are selected upon the condition of their proportionality to the content of Ni in the alloy and inverse proportionality to the value of elasticity, attributed to this stent.

8. The method of manufacturing a stent, including the formation of a netted, hollow volumetric body from a metallic thread by interweaving its windings, woven on a mandrel made as a body of revolution with a rectilinear longitudinal axis, pre-deformation of the stent on the mandrel for giving to it specified form and dimensions corresponding to its operational status by means of heat treatment and subsequent removal of the mandrel, wherein the body of the stent is formed from a single length of a nitinol thread, and the pre-deformation of the stent is performed twice, first by an initial heat treatment of the stent on the mandrel with a rectilinear longitudinal axis made at the temperature of 330-390° C during 5-20 minutes, and after the end of heat treatment and removal of the above mandrel the stent is put onto a mandrel with a curvilinear longitudinal axis, the form of which corresponds to the form of prostheticated vessel, after which a repeated pre-deformation of the stent is performed by way of its quenching into water from the temperature of 630 - 660°, attributing a maximum elasticity for this stent, and after the removal of the mandrel the elasticity of separate sections of the stent is reduced by additional heat treatment at the temperature of 330 - 550° C during from 1 to 30 minutes, while the temperature and time of heat treatment in the above ranges are selected upon the condition of their proportionality to the content of Ni in the alloy and inverse proportionality to the value of elasticity, attributed to separate sections of the stent.

9. The method of claim 5 ,or claim 6 ,or claim 7, or claim 8, wherein the formation of the body of the stent is made with a displacement of opposite with respect to the longitudinal plane of the stent cells, providing for a mismatch of projections of their apexes upon the above plane.

10. The stent of claim 5 ,or claim 6 ,or claim 7, or claim 8, wherein it is manufactured from nitinol TiNi, containing in mass %: 55.5-56 Ni, the rest Ti.